

## INFORMATION SHEET

ORDER NO. R5-2008-\_\_\_\_\_

TEJON-CASTAC WATER DISTRICT – TEJON INDUSTRIAL COMPLEX WWTF  
KERN COUNTY

### **Background**

The Tejon-Castac Water District (hereafter District) owns and operates a wastewater collection, treatment, and disposal facility (WWTF) that provides sewerage services at the Tejon Industrial Complex (Complex). The land on which the WWTF and Complex resides is owned by Tejon Ranchcorp and includes a hotel, gas stations, restaurants, shower and restrooms areas, convenience stores and industrial warehouses at the junction of Interstate Five at Laval Road. The District and Tejon Ranchcorp are hereafter referred to as Discharger. The WWTF has an average daily flow of 0.06 million gallons per day (mgd). On 30 November 2004, the Discharger submitted a report of waste discharge (RWD) in support of a modification and expansion of the WWTF from 0.05 to 0.1 mgd.

Waste Discharge Requirements (WDRs) Order No. 99-076 adopted by the Regional Water Board on 11 June 1999, was originally issued to Tejon Ranchcorp before the formation of the District. Order No. 99-076 limits the discharge to 0.05 mgd. The Discharger initially proposed to exclusively recycle disinfected tertiary effluent on landscaped areas (Landscaped Use Area) surrounding the Industrial Complex. Therefore, the WDRs establish effluent limits on a monthly basis for 5-day biochemical oxygen demand (BOD<sub>5</sub>), total suspended solids (TSS), settleable solids (SS), total coliform organisms (TCO), turbidity, and electrical conductivity (EC).

The WWTF consists of the wastewater collection system, influent pump station, headworks with a comminutor, bar screen and flow meter, a dissolved air floatation (DAF) unit (installed in September 2007) followed by an aerated flow equalization basin. Wastewater from the equalization basin is discharged to two plants, the Santec WWTF (WWTF-1), and the STM Aerotor WWTF (WWTF 2). WWTF-1 is designed to treat 0.05 mgd, and is an extended aeration package plant. WWTF-2 is also designed to treat 0.05 mgd and is a fixed film process. The WWTF was originally designed to filter and disinfect prior to discharge to ponds (Ponds 1 and 2) and then recycled on 14-acres of landscaped areas (Landscaped Use Area). Pond 1 is equipped with a compacted clay liner and Pond 2 is unlined.

The WWTF is situated on approximately 5-acres, and originally designed to treat 0.05 mgd, which corresponds to the first phase of development. The Discharger's long-term plan is to construct a new WWTF that will serve its discharge, the discharge from the Tejon Industrial Complex to the east of I-5, and eventually the discharge from TravelCenters of America (TA) also east of I-5. The TA currently has separate WDRs (Order No. 5-01-002) that authorize the discharge of up to 0.07 mgd of undisinfected secondary effluent to ponds. The Discharger has indicated that the WWTF will have a ultimate treatment capacity of 0.6 mgd at full build-out.

### **Water Recycling**

The Discharger has the capability of recycling disinfected tertiary effluent on approximately 14 acres of landscaped area (hereafter Landscaped Use Area) owned by the Discharger. The Discharger may recycle undisinfected secondary effluent on fiber and fodder crops, but would need to complete a Title 22 Engineering Report, and submit a report of water recycling. The

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proposed Order would either be re-opened, or the Regional Water Board would issue water recycling requirements for this type of discharge.

### Solids and Biosolids Disposal

Screenings are ground at the headworks. Wasted sludge from the clarifiers and reactors is pumped into a truck and hauled offsite for disposal at an authorized facility.

### Groundwater Conditions

The facility is within the White Wolf groundwater basin. According to the Wheeler Ridge-Maricopa Water Storage District, the aquifer is vertically unconfined but horizontally confined by bedrock, and the White Wolf Fault. In the discharge vicinity, groundwater is about 500 – 900 feet below ground surface (bgs). Source water wells within the area are typically around 900 to 1000 feet deep. Generally, first encountered groundwater contains EC values ranging from 500 to 2,550  $\mu\text{mhos/cm}$ , and nitrate as N of less than 10 mg/L, according to information from U.S. Geological Survey wells within two miles of the WWTF. The back up supply well and the water supply from groundwater wells at TA show an EC ranging from 1000 to 1300  $\mu\text{mhos/cm}$ .

The Discharger is currently not required to monitor groundwater, so water quality data within the immediate vicinity of the WWTF is limited.

### Compliance History

The Discharger consistently exceeds the tertiary effluent limits specified in WDRs Order No. 99-076. Table 1 summarizes the effluent BOD, TSS and EC concentrations from June 2006 through November 2007.

**TABLE 1 – SUMMARY OF BOD, TSS AND EC**

<u>Date</u>	<u>BOD</u> <u>mg/L</u>	<u>TSS</u> <u>mg/L</u>	<u>EC</u> <u><math>\mu\text{mhos/cm}</math></u>	<u>Date</u>	<u>BOD</u> <u>mg/L</u>	<u>TSS</u> <u>mg/L</u>	<u>EC</u> <u><math>\mu\text{mhos/cm}</math></u>
Jun-06	335	210	979	Mar-07	19	73	1184
Jul-06	34	84	1048	Apr-07	45	74	1057
Aug-06	34	142	992	May-07	130	90	1009
Sep-06	72	65	917	Jun-07	19	36	1189
Oct-06	36	86	895	Jul-07	16	39	1201
Nov-06	NA <sup>1</sup>	NA	NA	Aug-07	34	59	1283
Dec-06	28	53	910	Sep-07	19	32	1359
Jan-07	41	77	1131	Oct-07	16	17	1361
Feb-07	32	68	1172	Nov-07	15	84	1347

<sup>1</sup> Not available.

Originally, and as reflected in WDRs Order No. 99-076, the WWTF consisted only of WWTF-1. As flows increased, the Discharger submitted a RWD for the installation of WWTF-2. Due to deficiencies in treatment from WWTF-1 and WWTF-2, the filtration and disinfection facilities

were not adequate. The Discharger has never consistently met the effluent limits specified in WDRs Order No. 99-076, and therefore, unable to recycle effluent on the Landscaped Use Area. Violations may be caused, in part, by the unusually high influent BOD, which generally averages about 530 mg/L, but can be as high as 1,000 mg/L. The WWTFs were designed to treat a BOD of typical domestic strength (250 – 300 mg/L). Because the WWTFs have never met the WDRs limits for effluent recycling for unrestricted use, Tejon bypasses its tertiary filters, disinfects the effluent with a minimal dose of chlorine and discharges it to lined Pond 1, which overflows into the unlined Pond 2.

Both WWTFs are labor intensive and are not capable of meeting typical secondary effluent limits. In the interim, Tejon constructed a DAF unit to reduce the organic loading prior to discharge to the WWTF-1 and WWTF-2. It is not known whether this improvement will result in an effluent quality that meets the Basin Plan's minimum BOD and TSS treatment standards or allow it to recycle effluent.

In 2004, Tejon submitted a RWD in support of a flow increase to 0.1 mgd. The flows at the WWTFs can vary up to 0.05 mgd on a month-to-month basis depending on seasons and peak travel weekends. In support of the flow increase, the 2004 RWD included a water balance based on the following assumptions:

1. Influent flows vary based on recorded values, which range from 0.05 mgd to 0.1 mgd.
2. WWTF-1 and WWTF-2 consistently treat to tertiary standards.
3. Approximately 25 percent of the effluent is used for unrestricted irrigation.
4. 100-year rainfall return period.

Based on the above, the water balance calculates that 5.2 MG of storage is needed. The above assumptions are not reflective of current or short-term conditions. The Discharger submitted a revised water balance that it can dispose of at least 0.1 mgd without effluent recycling.

### **Basin Plan, Beneficial Uses, and Regulatory Considerations**

The Basin Plan indicates that the greatest long-term problem facing the entire Tulare Lake Basin is increasing salinity in groundwater, a process accelerated by man's activities and particularly affected by intensive irrigated agriculture. The Basin Plan recognizes that degradation is unavoidable until there is a long-term solution to the salt imbalance. The Regional Water Board encourages proactive management of waste streams by dischargers to control addition of salt through use, and has established an incremental EC limitation of 500  $\mu$ mhos/cm or a maximum of 1,000  $\mu$ mhos/cm, as the measure of the maximum permissible addition of salt constituents through use.

Discharges to areas that may recharge good quality groundwaters shall not exceed an EC of 1,000  $\mu$ mhos/cm, a chloride content of 175 mg/L, or boron content of 1.0 mg/L.

Maximum salinity limits for most wastewater discharges for most areas are 1,000  $\mu\text{mhos/cm}$  EC, 175 mg/L chlorides, and 1 mg/L boron. One exception is the White Wolf subarea where more or less restrictive limits apply. The proposed discharge is in the White Wolf subarea. The limits for the White Wolf subarea are discussed in the Basin Plan's "Discharges to Land" subsection of the "Municipal and Domestic Wastewater" section.

The relaxation of applicable effluent salinity limits in the White Wolf subarea is based on the class of irrigation water underlying the WWTF. To determine the class of irrigation water, it is necessary to understand underlying groundwater quality. Based on USGS wells within the area, the EC of the groundwater can vary greatly (500 to 2,550  $\mu\text{mhos/cm}$ ); however, the EC of the Tejon and TA source water wells range from 1000 to 1300  $\mu\text{mhos/cm}$ , which is likely more representative of local groundwater conditions.

The Basin Plan specifies that irrigation waters (underlying groundwater in this case) with an EC between 1000 – 3000  $\mu\text{mhos/cm}$  considered Class II irrigation water with respect to EC. Therefore, based on the information available, the applicable Basin Plan limit for EC is 2000  $\mu\text{mhos/cm}$ . The Basin Plan also states that "in areas where groundwater would be Class I except for the concentrations of a specific constituent, only that constituent will be allowed to exceed the specified limits for Class I water." This Order only addresses quality with respect to EC, and requires effluent monitoring for the remainder.

### **Antidegradation**

The antidegradation directives of State Water Board Resolution No. 68-16 (Resolution No. 68-16), "Statement of Policy With Respect to Maintaining High Quality Waters in California," or "Antidegradation Policy" require that waters of the State that are better in quality than established water quality objectives be maintained "consistent with the maximum benefit to the people of the State." Waters can be of high quality for some constituents or beneficial uses and not others. Policy and procedures for complying with this directive are set forth in the basin plan.

Constituents typically elevated in domestic wastewater threaten the beneficial uses of groundwater if not adequately controlled by a treatment process or attenuated in the soil profile prior to discharge to first encountered groundwater. Discharges that rely on percolation for disposal may result in the percolation of excess organic carbon, and the mobilization of other constituents (e.g., iron, manganese, arsenic, etc.).

The discharge from the WWTF will likely not degrade the beneficial uses of groundwater because:

- a. For salinity, the Basin Plan contains effluent limits for the White Wolf Basin that considered Resolution 68-16. The discharge meets these limits and is, therefore, consistent with Resolution 68-16.
- b. For nutrients, Tejon will either maximize water recycling and minimize percolation of effluent, or reduce the amount of nutrients percolating into groundwater, or a combination

of both. If effluent recycling is maximized, (preferred method in the Basin Plan), any incidental percolation during the winter months or between irrigation cycles will have a minimal environmental impact due to depth to groundwater and quantity percolated. If the Discharger does not proceed with recycling effluent, an antidegradation analysis for nitrogen would likely be necessary, and this Order re-opened, as appropriate.

The WWTF provides treatment and control by incorporating low salinity source water, effluent recycling, tertiary or secondary treatment of the wastewater, appropriate biosolids storage and disposal practices, and an Operation and Maintenance (O&M) manual.

The water quality degradation authorized by the proposed Order is of maximum benefit to the people of the State. Economic prosperity of local communities is of maximum benefit to the people of California, and therefore sufficient reason exists to accommodate growth and groundwater degradation around the Complex. It is a major employer in the local area and contributes to the local, regional, and State economy. The Complex also provides commercial, dining, and lodging to travelers along the major Interstate 5 and Highway 99 corridor, which is the gateway between central and southern California. The degradation of groundwater quality to what is authorized herein, considering the best efforts of the Discharger and magnitude of degradation, is of maximum benefit to the people of the State.

#### **Title 27**

Title 27, California Code of Regulations (CCR), Section 20005 et seq. (Title 27) contains regulations to address certain discharges to land. Title 27 establishes a waste classification system, specifies siting and construction standards for full containment of classified waste, requires extensive monitoring of groundwater and the unsaturated zone for any indication of failure of containment, and specifies closure and post-closure maintenance requirements. Generally, no degradation of groundwater quality by any waste constituent in a classified waste is acceptable under Title 27 regulations.

Discharges of domestic sewage and treated effluent can be treated and controlled to a degree that will not result in unreasonable degradation of groundwater. For this reason, they have been conditionally exempted from Title 27. Treatment and storage facilities for sludge that are part of the WWTF are considered exempt from Title 27 under section 20090(a), provided that the facilities not result in a violation of any water quality objective. However, residual sludge (for the purposes of the proposed Order, sludge that will not be subjected to further treatment by the WWTF) is not exempt from Title 27. Solid waste (e.g., grit and screenings) that results from treatment of domestic sewage and industrial waste also is not exempt from Title 27. This residual sludge and solid waste are subject to the provisions of Title 27.

Accordingly, the municipal discharge of effluent and the operation of treatment or storage facilities associated with a municipal wastewater treatment plant can be allowed without requiring compliance with Title 27, but only if resulting degradation of groundwater is in accordance with the Basin Plan.

## **CEQA**

The Kern County Planning Department, as the lead agency for purposes of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000, et, seq.) and the CEQA guidelines (Title 14, Division 6, California Code of Regulations, as amended), in 1998 adopted a mitigated negative declaration (MND) and in 2000 certified a Environmental Impact Report (EIR) that evaluates the potential environmental impacts from the discharge of disinfected tertiary effluent to land. The Regional Water Board is a responsible agency pursuant to CEQA. The Regional Water Board reviewed and considered the MND and EIR prepared by the County. This Order contains requirements that will mitigate or avoid environmental effects on water quality.

## **Proposed Order Terms and Conditions**

### **Discharge Prohibitions, Effluent Limitations, Discharge Specifications, and Provisions**

The proposed Order prohibits discharge to surface waters and water drainage courses.

The proposed Order requires the Discharger to discharge at flows of 0.1 mgd. The proposed Order allows two types of discharges, to ponds, and to surrounding landscaped use area for unrestricted use.

1. Discharge to Ponds - The proposed Order prescribes monthly average and daily maximum effluent limits for BOD<sub>5</sub> and TSS of 40 mg/L, and 80 mg/L, respectively, as well as the 80 percent removal of both BOD<sub>5</sub> and TSS, whichever is more restrictive. These limitations are based on Basin Plan minimum performance standards for domestic facilities. Currently, discharge is primarily to Pond 1. The Discharge then overflows into unlined Pond 2 where it is disposed of through percolation and evaporation. Pond 1 is generally full and has a constant freeboard level and detention time. Pond 1 likely provides additional settling and, if organic loading is not excessive, additional treatment. The proposed Order allows compliance be determined at the outlet of Pond 1, but also allows the option to determine compliance prior to discharge to Pond 1 if limits are more easily achievable there (e.g., due to algae growth).
2. Discharge to Landscaped Use Area (unrestricted use) - The proposed Order prescribes effluent limits for BOD<sub>5</sub> and TSS of 10 mg/L monthly average and 20 mg/L daily maximum, which are consistent with the effluent quality necessary to meet tertiary standards for filtration and disinfection. In order to protect public health and safety, the proposed Order requires the Discharger to comply with the provisions of Title 22 and to implement best management practices with respect to recycled water application (application at reasonable rates considering the crop, soil, and climate).

The proposed Order establishes an effluent limitation for EC that reflects the Basin Plan limits for the White Wolf Basin. The proposed Order also requires a provision requiring the Discharger to submit a salinity control plan to ensure that the salts are controlled to the maximum extent feasible.

The discharge requirements regarding dissolved oxygen and freeboard are consistent with Regional Water Board policy for the prevention of nuisance conditions, and are applied to all such facilities.

The proposed WDRs requires the Discharger to submit an operation and maintenance manual for the UV disinfection to ensure compliance with Title 22 disinfection requirements, as applicable.

The proposed WDRs prescribe groundwater limitations that implement water quality objectives for groundwater from the Basin Plan. The limitations require that the discharge not cause or contribute to exceedances of these objectives or natural background water quality, whichever is greater.

### **Monitoring Requirements**

Section 13267 of the CWC authorizes the Regional Water Board to require monitoring and technical reports as necessary to investigate the impact of a waste discharge on waters of the State. In recent years, there has been an increased emphasis on obtaining all necessary information, assuring the information is timely as well as representative and accurate, and thereby improving accountability of any discharger for meeting the conditions of discharge. Section 13268 of the CWC authorizes assessment of civil administrative liability where appropriate.

The proposed Order includes monitoring of the influent, effluent, ponds, sludge, use area and water supply. The monitoring is necessary to evaluate water quality and the potential extent of the degradation from the discharge.

### **Reopener**

The conditions of discharge in the proposed Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and plans, and are intended to assure conformance with them. The proposed Order sets limitations based on the information provided thus far. If applicable laws and regulations change, or once new information is obtained that will change the overall discharge and its potential to impact groundwater, it may be appropriate to reopen the Order.

### **Proposed Enforcement Order**

The Discharger has not demonstrated it can comply with the effluent limitations of the existing and proposed Orders due to lack of treatment and disposal capacity. An accompanying draft Cease and Desist Order would require the Discharger to complete a series of tasks necessary to comply with the proposed WDRs, or construct an additional WWTF.

ARP/DKP: 12/27/07